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The Results of Expectant Treatment in Three Hundred and Twenty-three Cases of Typhoid Fever

BY

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NEW YORK

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The Results of Expectant Treatment in Three Hundred and Twenty-three Cases of Typhoid Fever.

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THE treatment of typhoid fever has always been an interesting subject for discussion. Even now some contend that the disease requires a great deal of treatment, while others assert that the best results have been obtained by the expectant plan.

It can be from no lack of material that the better method remains undecided; for, notwithstanding the many advances in sanitary science, and the constant attention given to this disease by our Municipal Board of Health, typhoid fever still prevails to some extent in New York City.

During the year 1891, 1,342 cases were reported to the Bureau of Contagious Diseases; and it may be safely said, even though the Health Department endeavors to enforce a system of reporting infectious diseases, this number will fall far short of the actual cases existing during that time. Of the cases, 384 were deaths, over 28.6 per cent. of those reported. This disease is met with, it is true, in private as well as hospital practice, but the large number coming under the observation of one man in the hospital makes such records obviously of greater value. Again, the results of hospital treatment are very much better, owing to the almost continuous

attention of the physician, and the intelligence as well as the strictness of the experienced nurse. In the cases of private patients, the sympathizing and willing friend is the greatest enemy of the doctor and the nurse, and consequently the ever-present obstacle to good results.

St. Francis Hospital of New York City treats, relatively speaking, a large number of cases of typhoid fever each year; and during the last thirteen years there were treated in that hospital 1,012 cases, with only 162 deaths, a mortality of sixteen per cent. The cases forming the subject of this report, 323 in number, include all those admitted to the service of Dr. J. H. Ripley, from October 1, 1884, to January 1, 1892, and most of them came under the observation of the writer. Of the 323 cases, 47 died, a gross mortality of 14.23 per cent. These 47 deaths included 12 moribund cases, or such as were, on admission, so weak that they died within forty-eight hours. If we then omit these moribund cases, as in fairness we can, the death-rate is reduced to 11.25 per cent.

The cases of this report were all real cases of typhoid fever; for the list does not contain any so-called "aborted cases," simple febricular, or any in which typhoid fever was only suspected for a few days. The diagnosis was as certain as we can ever make it, in each and every case. In those cases that died after admission in a moribund state an autopsy was performed to clear up any doubt.

A few words will suffice to explain the treatment employed. It was purely expectant. The drugs used, consisted of a 5- or 10-grain dose of calomel to begin with, if the disease was not too far advanced; whiskey, when stimulation was necessary, and in the case of very great and continued pyrexia (over 105° F.), the cold pack was the usual means employed to reduce it. When possible the water-bed was used in these high temperature cases, but only occasionally was antifebrin or phenacetin given, and then only in single doses. There is no doubt but that the value of antipyretic drugs in all febrile dis-

eases is over-estimated ; and where the patient is fortunate enough to survive their use, he is very seldom, if ever, benefited by them. Troublesome diarrhœa was treated with bismuth combined with small doses of opium ; or if very obstinate, 5-grain doses of naphthalin were given every two hours until relief was obtained. For intestinal hemorrhage, laudanum in 5- or 10-drop doses was administered at short intervals until the desired effect was secured.

The nursing, which is of such moment in this disease, was most strictly attended to by the sisters in charge of the hospital. The diet was wholly a fluid one, consisting in the most part of milk, together with strained meat broths, and was so maintained until a full week of normal temperature had passed. Even then great care was taken, and the full diet only reached in a gradual manner. The patient, as a matter of course, was kept in a reclining posture and was not allowed to rise or leave the bed under any circumstances.

The cases here reported were mostly drawn from the East Side tenement district, and were therefore, principally of Austrian, German, or Irish nationality or extraction. They came from the lower walks of life, being hard worked, poorly nourished, living under bad hygienic surroundings, and consequently in no physical condition to withstand a tedious and exhausting disease. Again, thrifty and independent as a class—also very superstitious —they use the hospital only as a place of last resource, and cause us to combat in addition to the other drawbacks, the great dangers arising from delayed admission and poor previous care. Only on rare occasions do these people apply for admission before the end of the first week of the disease, and as a rule, not before fourteen days or more of illness. We have, as I have previously mentioned, a number admitted in a moribund condition ; this condition, often due to intestinal hemorrhages or intestinal perforation, forces them to apply for admission against their own wishes.

Causes of Death.—The causes producing death in the 47 fatal cases have been classified, and were as follows:

Cause.	Male.	Female.	Totals.
Moribund on admission	7	1	8
Moribund, with intestinal perforation and peritonitis	1	..	1
Moribund, with intestinal hemorrhages	1	..	1
Moribund, with lobar pneumonia	2	..	2
Intestinal hemorrhages	2	1	3
Intestinal hemorrhages and lobar pneumonia.	..	1	1
Intestinal perforation	2	..	2
Intestinal perforation and peritonitis	2	..	2
Intestinal hemorrhages, perforation, and peritonitis	1	..	1
Relapse	1	..	1
Typhoid, with pharyngeal diphtheria	..	1	1
Typhoid, with pneumonia	1	1	2
Typhoid poison and exhaustion	15	7	22
Totals	35	12	47

Only 22 of all the deaths were due to the typhoid poison alone, being about one-half, or more exactly, 6.8 per cent. of the total number of cases. Of the other 25 fatal cases, 11 succumbed to the intestinal lesions, which it may be safely assumed cannot be prevented, and are seldom passed over without a fatal issue. Pneumonia caused death in 4 of the cases, 2 of these being moribund when brought to the hospital. One death occurred as a result of the rare complication, pharyngeal diphtheria, and one during a relapse. In another of these fatal cases, to be further explained later on, an intestinal perforation occurred during a relapse, but the case has been included in the intestinal class. Now, omitting 2 of the 12 moribund cases, these 2 having died of the intestinal lesions, 10 still remain whose deaths may be put down as due to neglect; or speaking mildly, their lives were shortened by being moved while in such a precarious state.

Tabulating the cases as they occurred so as to show the results of each year's work, we have the following :

Year.	Number of cases.	Number of recoveries.	Number of deaths.	Number of moribund cases.	Deaths from intestinal lesions.	Percentage of deaths.	Percentage after deducting moribunds.
From Oct. 1, 1884, to Jan. 1, 1885 ..	33	28	5	1	2	15.1	12.5
During 1885	43	38	5	3	1	11.6	5.0
During 1886	41	38	3	1	..	7.3	5.0
During 1887	42	34	8	1	3	19.0	17.0
During 1888	29	24	5	3	3	17.2	7.6
During 1889	58	46	12	2	..	20.6	17 8
During 1890	40	36	4	..	1	10.0	10.0
During 1891	37	32	5	1	1	13.5	11.1
Totals.....	323	276	47	12	11		

It will be noticed that the best result was obtained in 1886, when 41 cases were treated and only 3, or 7.3 per cent., died. No intestinal accident happened, and only 1 moribund case was admitted. Had that case remained away, the mortality would have been only five per cent. This same result, 5 per cent., was also reached in 1885 when we leave out the 3 moribund admissions. In that year, 1885, 43 cases were treated, with 5 deaths, or 11.6 per cent. ; 3 of these were admitted moribund, and 1 died of the intestinal lesions.

The highest death-rate occurred in 1889, when out of 58 cases 12, or 20.6 per cent. died ; even after omitting the 2 cases that entered in a moribund state, we still had the high rate of 17.8 per cent.

Summing up the yearly results we had in 1889, 20 per cent. mortality ; in 1887, 19 per cent. ; in 1888, 17 per cent.; during the three months of 1884, 15 per cent.; in 1891, 13 per cent. ; in 1885, 11 per cent. ; in 1890, 10 per cent. ; and in 1886, 7.3 per cent. These figures, it must be understood, show the results obtained, taking all cases into consideration, and are materially reduced

when the cases admitted in a collapsed or moribund state are omitted, as is shown in the table.

The low rate of 7.3 per cent., reached in 1886, is that which Dr. Brand obtains, as shown in his reports of cases treated by his cold-bath plan. He says one cannot hope to reach a lower rate than 5 per cent., which mortality (5 per cent.) we were enabled in fact to obtain during two consecutive years. It may be mentioned here, for it tends to augment the value of the results we have obtained, that the subjects Dr. Brand had to treat were of an entirely different class physically from those we receive. They were as a rule robust, vigorous young soldiers, and not the poorly-fed results of competitive bread-winning found in this great city.

The number of deaths from the intestinal lesions it will be noticed, bears no fixed ratio to the number of cases in the several years' groups. The varying results obtained during these years, tends to show very plainly the great changes in its virulency that this disease assumes during different periods. One year all of the cases will be comparatively mild, and the next the poison may show its malignancy in the stupor, delirium, and other nervous manifestations of the so-called typhoid state.

In the following table the cases are divided into groups of one hundred ; and in order to include the last, or odd 23 cases, a fourth group, composed of the last one hundred cases treated, has been added :

	Number of recoveries.	Number of deaths.	Number of cases moribund.	Number of deaths from intestinal lesions.	Mortality, omitting cases moribund, per cent.
First 100 cases	89	11	4	3	7.2
Second 100 cases	81	19	5	6	14.7
Third 100 cases	85	15	3	2	12.3
Last 100 cases	87	13	2	2	11.2

In the first 100 cases there were 89 recoveries and 11 deaths, including 4 admitted moribund; 3 cases died of the intestinal lesions. The death-rate, omitting the moribund cases, was 7.2 per cent. The second 100 gives us only 81 recoveries, with 19 deaths, 5 of those being "moribunds;" 6, a large number, died of the intestinal lesions, and the mortality-rate of this group, minus "moribunds," was 14.7 per cent. The third 100 gave 85 recoveries and 15 deaths, including, as usual, moribund cases, 3 in number; 2 deaths were caused by intestinal accidents, one of hemorrhages and one of perforation; and the death-rate, leaving out the cases admitted in collapse, was 12.3 per cent. The fourth series, which is composed of the last 100 cases, and which includes the odd 23, gave us 87 recoveries, while 13 cases were fatal, including 2 admitted moribund. Two of the patients succumbed to the intestinal lesions and the percentage obtained, after omitting the "moribunds," was 11.2. Even in groups of 100 cases the mortality-rates are variable, though not as markedly so as in the smaller sets. On arranging our cases however, in series of 200, we find the death-rate much more stable, it being between 14 and 15 per cent. These figures are reduced to 10 per cent. and 11 per cent. respectively when we take into consideration the cases that were admitted in collapse, and the mortality of the whole 323 cases to 11.25 per cent.

Age.—The patients ranged in age from eight to seventy-four years; of the former there were three cases, and at the latter age but one a female, who by the way, was discharged cured. The next oldest was fifty-seven years of age. The number of cases at the various ages were as follows:

Age.	Cases.	Deaths.	Mortality.
			Per cent.
Under 10 years	4	1	25.0
From 10 to 15 years	8	1	12.5
From 15 to 20 years	67	5	7.4
From 20 to 25 years	104	13	12.5
From 25 to 30 years	84	13	15.4
From 30 to 35 years	27	3	11.1
From 35 to 40 years	17	7	41.1
From 40 to 45 years	6	3	50.0
From 45 to 50 years	3	1	33.3
At 50 years and over	3	0	0.0

This table shows that 255, or more than two-thirds of all the patients, were between fifteen and thirty years of age, and that 104, or nearly one-third, ranged from twenty to twenty-five years in age. The greatest mortality, 50 per cent., occurred in those patients that were between the ages of forty and forty-five; and, next to the last, in which there were no deaths, the smallest, 7.4 per cent., occurred in those between fifteen and twenty years. The groups however, are not sufficiently large, except in three instances, to make the ratings of much value.

The death happening in those under ten years, was that of a boy eight years of age, who was admitted on the fourteenth day of his sickness. The fever ran a favorable course until the twenty-sixth day, when a relapse occurred, and he died on the thirty-ninth day of the disease. An autopsy revealed perforation of the gut at the site of a sloughing ulcer, also some recently healed Peyer's patches. The fatal case in the second set was that of a boy aged eleven, who, having been brought into the hospital in a moribund state with well-marked peritonitis, died within thirty-six hours. The autopsy showed a general suppurative peritonitis and perforation of a typhoid ulcer.

These deaths have been particularly mentioned, for the reason that the mortalities of twenty-five and twelve per cent., respectively, are rather high, considering the ages of the cases. It is generally believed that typhoid

fever is, in children, rather more favorable as to prognosis than in adults.

Sex.—When these 323 cases are divided as to sex, we find that there were 251 males and 72 females. Among the males 35, or 13.9 per cent., died, and of the females 12, or 16.6 per cent., were fatal. Of the 12 moribund cases only one was of the gentler sex, and only two females died of the accidents liable to follow the intestinal lesions.

Season.—The greatest number of admissions of typhoid fever patients occurred during the autumn months, and the least number in the spring.

Spring	15	Autumn	203
Summer	87	Winter	18

Of the 87 cases admitted in the summer time, 14 died, or 16 per cent.; and of the 203 who entered in the fall 28, or 13.7 per cent., proved fatal. The marked difference in the number of the cases comprising these two seasons' admissions lessens the value of the relative mortality rates. It is contended by some, that the death-rate is higher during the summer than during the cooler months, but a great many factors must be taken into consideration before agreeing to that opinion.

Complications.—In only about two per cent. of the cases did relapses or reinfection occur, and this very favorable showing is undoubtedly due to the strictness of the dietetic treatment and the nursing.

Pneumonia occurred as a complication in 15 of the cases, 10 being croupous and 5 catarrhal in form. Of the 5 fatal cases, all of which were of the croupous variety, two were admitted moribund and one had also intestinal hemorrhages. It will be noticed that recovery took place in all of the cases complicated by the catarrhal form of this disease.

Hemorrhages from the bowels complicated ten of the cases, and six of these ended fatally. In one of these fatal cases the hemorrhages were followed by a perfora-

tion of the gut, and later by suppurative peritonitis; in another, as has been mentioned, croupous pneumonia was an additional complication. Of the four cases ending in recovery one had profuse hemorrhages on four different occasions, and it was most certainly believed that he had a perforation of the gut also.

By no physical signs, or subjective or objective symptoms, can the physician diagnose the gravity of the intestinal lesions before the gut has suffered a perforation. Frequently at the autopsies have the ulcerations been found to have eaten clear through to the peritoneal covering of the intestines.

A number of our cases were also complicated by other diseases which were fortunately not fatal. They were as follows:

	Cases.
Fracture of the lower jaw	1
Ischio-rectal abscess	1
Phlebitis	2
Phthisis, incipient	3
Phthisis with Pott's disease	1
Pleurisy with effusion	2
Purulent otitis	4
Suppuration of a thyroid cyst	1
Varicose ulcer (large) of leg	1

That a very low mortality-rate can be reached in small, or, considering the tendency of this disease to a favorable termination, in relatively small series of cases, is particularly shown in the results achieved during 1885 and 1886, when 80 cases were treated, with only 5 per cent. of deaths. A number of such series might easily be collected, and when combined would, of course, result in a surprisingly low rate. Thus it is plain that a just and average mortality can only be obtained from the treatment of a large number of consecutive cases; those cases should be seen in one institution and be under the care of but one man, or a very few men, to insure a reliable report.

In conclusion we can say that of our cases nearly

four per cent. died as the result of admission in a moribund state; that over three per cent. died of the accidents incidental to the intestinal lesions, as hemorrhages, perforation, and peritonitis; that 1.5 per cent. died of complicating pneumonia; that 6.8 per cent. died of the typhoid poison itself and its resulting exhaustion. That the death-rate was higher among the females than the males, and that the lowest mortality was in those cases of an age between fifteen and twenty years.

It is not likely that any treatment can be devised which will prevent absolutely such occurrences as intestinal hemorrhages and intestinal perforations, and therefore we shall always have those to contend against. A treatment which may possibly antidote the specific poison of typhoid fever without lowering the vitality of the patient will be, in accordance with our present theory, the one to reduce its mortality.

The writer wishes to express his grateful thanks to Dr. J. H. Ripley for the permission given to report these cases, and for his helpful suggestions and kind advice.

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